

University of Toronto, School of the Environment
ENV 1001: Environmental Decision-Making: Interdisciplinary Perspectives
Fall 2017, Wednesdays 12-3pm

Location

OI8220 – On weeks with no guest speaker

SS1069 – On weeks with a guest speaker

Instructor contact information

Tanhum Yoreh, PhD

Assistant Professor, School of the Environment

Room 1048B, Earth Sciences Building, 5 Bancroft Ave.

416-978-6484

tanhum.yoreh@utoronto.ca

Office hours: Thursdays, 10:00 am – 12:00 pm, or by appointment (send email)

Course overview

Description and goals: This is the core course for the graduate Collaborative Specialization in Environmental Studies at the School of the Environment. In this course, we address the broad topic of "environmental decision-making," which we understand as the challenging process of how humans engage with the natural world, and the many iterative (and sometimes invisible) decisions we make about how to organize human societies and activities. While decision-making is itself a field of study, this course takes a more flexible interpretation of the term, involving choices about, and affecting, the environment.

With a focus on the insights from across a range of disciplines--throughout the humanities, social sciences, and natural and applied sciences--and with attention to fields beyond academia, we consider multiple perspectives on the environment. Through guest lectures, student research presentations, group projects, and individual written assignments, we explore questions of worldviews and values, conflicting interests and information, decision-making models and tools, and evaluation and adaptation.

Students should emerge from the course with a broader set of perspectives on environmental and social challenges, enhanced communication skills across disciplines, and additional experience in diverse teams. Our central goal is to enable conversations to take place within and beyond the classroom about the challenges of human-environment relationships, with new ideas on creative and just approaches to social and political decisions.

Structure: Weekly 3-hour classes. The course is aligned with the School of the Environment's Environment Seminar Series, so every second week will have an invited guest lecturer, for a session open to the public. Any changes to the schedule will be announced in class and posted on Blackboard.

Assignments (details below)

- Participation: 10%
- Individual research presentation (“3-minute thesis”): 15%
- Guest speaker facilitation: 25%
- Individual writing assignment: 25%
- Group-based decision-making assignment: 25%

Assignment details

Participation 10% (continuous): Primarily an attendance-based grade, with quality of participation relevant to grade.

Three-Minute Thesis 15% (first weeks of class): 3-minute presentations based on own research/field of study/research area of interest. These will be held the first few weeks of class, on weeks without guest speakers.

Guest speaker facilitation 25% (week to be assigned): Several students will be responsible for each guest lecturer's visit: this involves preparing for the visit and leading discussion on each guest speaker. Students may work with their classmates for this, but each student will have an individual grade. This assignment involves:

- 1) posting a short (1-page) summary on Blackboard of the assigned readings for the guest speaker by midnight Sunday ahead of the speaker's visit, with 1-2 discussion questions;
- 2) posting a list of 1-2 supplementary reading materials (academic and otherwise) on the topic ahead of class (in the unlikely event that the guest speaker does not provide any readings, the 1-page summary should be of the supplementary readings);
- 3) facilitating post-guest-lecture discussions (30 minute small-group discussion sections with their classmates following the guest lecture);
- 4) providing summary comments about the lecture and small-group discussions to the whole class in a full class post-discussion wrap-up session (orally, in the third hour of class after the seminar talk);
- 5) posting a one-page post-lecture summary of the talk on Blackboard). (due ahead of the following week's class).

Individual writing assignment 25% (Due Nov 15 – *early submission is encouraged*): This is a 2000-3000 word written assignment, in the format of a viewpoint, forum, or editorial article. Students may choose to write for an intended academic audience, where such articles appear in many academic journals, including *Science's* policy forum; alternately, students may choose to write in the style of a policy or interdisciplinary web forum, such as the *Washington Post's* Monkey Cage, the Center for Global Development's web series, the Wilson Center's *New Security Beat*. The goal is to engage in interdisciplinary communication, with attention to the anticipated audience. Students will choose one of the guest lectures -- **not the one they facilitated** -- and investigate the theme of the lecture in more depth, drawing on other academic literature on the topic, and write their commentary/analysis piece accordingly.

Group-based decision-making assignment 25% (Due Dec 6): In 8000 words or less, not including citations, each research team will provide description and analysis of an individual, organizational or system-generated environmental decision made in the recent past. We will provide a list of possible topics, but groups are free to choose their own. In that case, we recommend discussion with the instructor before finalizing the choice of topic. The topic can be either the decision itself or both the decision and its implementation. That is, the research question to be addressed is one of the following:

- why was the decision made?
- why was the decision made and then implemented in the way it was?

Analysis can include any factors deemed relevant, but please be sure to include the influence of each of the four factors examined in the course (information, values, interests and process). Please make use of, and cite, course readings and class discussions.

Policies and Expectations

In general: In this course, you can expect that I will strive to be fair, respectful, prepared, responsive, and enthusiastic. In return, I anticipate you will be respectful of your classmates and of me, be prepared, and be on time for class. I hope that together we can foster a safe and engaging space, and I will rely on all of you to help create that space.

Portal Site: We will maintain a course Portal (Blackboard) site for readings, course announcements, course materials, and discussions. Please check in frequently with this site.

Deadlines: I anticipate that all assignments will be submitted on time. However, some students may find themselves with valid conflicts and challenges, especially in light of your diverse programs and courses of study. Please contact me as early as possible if you anticipate being unable to meet deadlines.

Backups and rough drafts: You are strongly advised to keep rough drafts and backup copies of all assignments and essays you submit for this class. Also, please take a minute at the start of the term to set yourself a backup strategy. Whether it's a backup external hard drive, a web-based cloud service like Dropbox or Google Drive, or some other option, it's important that you have multiple copies of your work in the case of a hard drive failure or computer problem (this is important not only for this course, but also (especially!) for your research and thesis projects).

Names: If the name on the official course registration list does not, for any reason, match the name by which you would like to be addressed (and under which you would like to submit assignments and sign emails) please let me know. I am not able to change official course lists, but I can certainly address you by your preferred name. Also, if you have pronouns by which you would like to be addressed, please let me know.

Exceptions and Assistance: The University has many resources to help students who are in need of assistance for any number of reasons, both in and outside of the classroom, including library resources, academic resources, and health and counseling services. The University also is committed to providing allowances for religious observances. If you are struggling or anticipate needing help with your coursework for academic and/or personal reasons, or you encounter unanticipated challenges or crises during the term, please seek the support you need as early as

possible. If you do not know the options, do not hesitate to ask. If you will need accommodation from me for any reason, in the classroom or on coursework and assignments, please let me know as soon as you can.

Some students find themselves facing challenges unexpectedly. If you find yourself in a difficult situation, even if you have not yet gone through all the official channels, it is best to let me know right away that you are seeking university assistance, and may need accommodations (you do not need to disclose the details of your situation to me). A few helpful resources:

- <https://www.sgs.utoronto.ca/gradlife/Pages/Grad-Wellness.aspx>
- <https://www.sgs.utoronto.ca/currentstudents/Pages/Writing-Centre.aspx>
- <http://uoft.me/religiousaccommodation>

Academic integrity: The seriousness of academic integrity really cannot be stressed enough. Academic integrity is **essential** to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously, seeing these as serious academic offenses.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters, through the School of Graduate Studies. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information from your instructor or other institutional resources. As some norms differ across disciplines and universities, please take a moment to familiarize yourself with UofT policies.

- <https://www.sgs.utoronto.ca/facultyandstaff/Pages/Academic-Integrity.aspx>
- <http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>
- www.artsci.utoronto.ca/osai/students

Potential offences include, but are not limited to:

- Using someone else's ideas or words without appropriate acknowledgement
- Using someone else's words without using quotation marks
- Submitting your own work in more than one course without instructor permission
- Making up sources or facts
- Obtaining or providing unauthorized assistance on any assignment.
- Looking at someone else's answers during an exam or test
- Falsifying institutional documents or grades
- Falsifying or altering any documentation required by the University

Accessibility Needs: *The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible:*

<https://www.studentlife.utoronto.ca/as>

Writing Assistance: If you find that you need some additional assistance with your writing, see this excellent resource that offers advice on academic writing: <http://advice.writing.utoronto.ca/>

Class topics and readings

Fall Schedule:

Week 1: Sept 13, Introduction

Week 2: Sept 20, Speaker: Hui Peng, Assistant Professor, Department of Chemistry and School of the Environment, University of Toronto. “Going Beyond Single-Chemical Risk Assessment.”

Week 3: Sept 27, interdisciplinarity; 3-minute thesis presentations

Week 4: Oct 4, Speaker: Jennifer Korosi, Assistant Professor, Department of Geography, York University, “Paleo-ecotoxicology: What can lake sediments tell us about ecosystem responses to arsenic contamination in Yellowknife (Northwest Territories) lakes?”

Week 5: Oct 11, environmental decision-making tools

Week 6: Oct 18, Speaker: Faisal Moola, PhD, Director General, David Suzuki Foundation; Adjunct Professor, Faculty of Forestry, University of Toronto; Adjunct Professor, Faculty of Environmental Studies, York University; Associate Professor, Department of Geography, University of Guelph (starting Dec. 1, 2017), “The Protection of Nature in Highly Urbanized Landscapes: The Case of Rouge National Urban Park.”

Week 7: Oct 25, systems thinking and multiple levels of decision-making

Week 8: Nov 1, Speaker: Kathleen Padulo, Director of Environment, Chiefs of Ontario.

Fall reading Week: Nov 8: *Fall reading week – no class*

Week 9: Nov 15, environmental values and aligning actions and intent

Week 10: Nov 22, Speaker: Ryan Janzen, Co-Founder and CTO, TransPod Inc.

Week 11: Nov 29, uncertainty and adaptation

Week 12: Dec 6, *group project due* Speaker: Frank Ackerman, PhD, Principal Economist, Synapse Energy Economics, Cambridge MA (USA); research fellow at Global Economic Governance Institute, Boston University, and at Global Development and Environment Institute, Tufts University, “Worst-Case Economics: Extreme Events in Climate and Finance.”

Week 1: Sept 13, introduction

In this first week of class week, we introduce the goals for this course on environmental decision-making. We discuss environmental studies, interdisciplinary communication, and decision-making, and consider how a range of perspectives might inform us of different ways of approaching challenging environmental issues. We also find out a bit about each other and the perspectives from which we are each coming to the course, as well as various motivations for enrolling in the collaborative program in environmental studies. Our readings introduce the broad topic of environmental decision-making and the nature of environmental challenges (raising questions of scientific uncertainty and measurement, time horizons and contingencies, and values and equity).

Readings: environmental decision-making and environmental challenges

- Nitta, Keith (last updated Jan. 24, 2014). “Decision making.” *Encyclopedia Britannica* online. <http://www.britannica.com/topic/decision-making>
- Lein, James (1997). “The nature of environmental decision making,” pp. 11-39 in *Environmental Decision Making: An Information Technology Approach*. Malden, Mass.: Blackwell Science.
- Simpson, Leanne Betasamosake. 2014. Land as pedagogy: Nishnaabeg intelligence and rebellious transformation. *Decolonization: Indigeneity, Education & Society*, 3(3): 1-25.

Week 2: Sept 20 Speaker Hui Peng, Assistant Professor, Department of Chemistry and School of the Environment, University of Toronto. “Going Beyond Single-Chemical Risk Assessment.”

Readings: tbd (linked with guest speaker)

Week 3: Sept 27, interdisciplinarity; three-minute thesis presentations

This week, students will each present a three-minute presentation of their research (or, for those in course-based programs or still in the course phase of a research program, a research topic of interest). The readings this week address questions of interdisciplinary studies and communication.

Readings: interdisciplinary studies

- Repko, Allen F. et al (2014). Chapter 1: “Interdisciplinary studies in the real world,” and Chapter 2: “Interdisciplinary studies defined.” In *Introduction to Interdisciplinary Studies*, London: Sage. pp. 3-46.
- Polfus, Jean L., Manseau, Micheline, Simmons, Deborah, Neyelle, Michael, Bayha, Walter, Andrew, Frederick, Andrew, Leon, Klütsch, Cornelya F.C., Rice, Keren, & Wilson, Paul. 2016. Łeghágots'enetę (learning together): the importance of indigenous perspectives in the identification of biological variation. *Ecology & Society*, 21(2): 18-52.

Week 4: Oct 4, Speaker Jennifer Korosi, Assistant Professor, Department of Geography, York University, “Paleo-ecotoxicology: What can lake sediments tell us about ecosystem responses to arsenic contamination in Yellowknife (Northwest Territories) lakes?”

Readings: tbd (linked with guest speaker)

Week 5: Oct 11, environmental decision-making tools

This week, we consider various tools that can be used in environmental decision-making, from modelling to environmental impact assessments to community consultations. In this overview of tools, we return to questions about the goals of decision-making, as well as the more technical processes of evaluating alternative courses of action.

Readings: decision-making tools

- Harding et al. (2009). “Chapter 8: Tools for environmental decision making,” pp. 193-224 in *Exploring Complexity and Context*. Annandale, New South Wales: The Federation Press.
- English, Mary R. et al (1999). “Overview,” chapter 1 (pp. 1-31) in *Tools to Aid Environmental Decision Making*, Virginia H. Dales and Mary R. English (eds.), New York: Springer-Verlag.

Week 6: Oct 18, Speaker Faisal Moola, PhD, Director General, David Suzuki Foundation; Adjunct Professor, Faculty of Forestry, University of Toronto; Adjunct Professor, Faculty of Environmental Studies, York University; Associate Professor, Department of Geography, University of Guelph (starting Dec. 1, 2017), “The Protection of Nature in Highly Urbanized Landscapes: The Case of Rouge National Urban Park.”

Readings: tbd (linked with guest speaker)

Week 7: Oct 25, systems thinking, multiple levels of decision-making, worldviews

This week, we turn to questions of the interconnectedness of many of our decisions, and how to address decision-making at multiple levels. We use ideas of systems thinking to help place our decisions into a broader context, considering how multiple worldviews might help us see environmental challenges in new ways.

Readings: systems thinking

- Meadows, Donella H. (2008). "Chapter 1: The basics," pp. 11-34 in *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Publishing.
- Liu, Jianguo et al (2015). Systems integration for global sustainability. *Science*, 347(6225): 963 plus 1258832-1 - 1258832-9.
- Hogan, Maureen P., and Sean A. Topkok. (2015). Teaching Indigenous methodology and an Inupiaq example. *Decolonization: Indigeneity, Education & Society*, 4(2): 50-75.

Week 8: Nov 1, Speaker Kathleen Padulo, Director of Environment, Chiefs of Ontario.

Readings: tbd (linked with guest speaker)

Fall Reading Week: Nov 8: Fall reading week – no class

Week 9: Nov 15: environmental values and aligning action with intent

This week returns to the recurring theme of environmental values, considering multiple perspectives on the questions associated with value, as well as the persistent question of the misalignment of peoples' actions with their claimed values. We ask some questions about decision-making that lie at the heart of the endeavour: who is making decisions? For whom? On what grounds?

Readings: environmental values and the values-action gap

- Dietz, Thomas, Amy Fitzgerald and Rachael Schwom (2005). Environmental values. *Annual Review of Environment and Resources*, 335-372.
- Kennedy, Emily Huddart et al (2009). Why we don't "walk the talk": Understanding the the environmental values/behaviour gap in Canada. *Human Ecology Review*, 16(2): 151-160.
- Jiga-Boy, Gabriela M., Gregory R. Maio, Geoffrey Haddock, and Katy Tapper (2015). "Values and behavior," chapter 12 (pp. 243-263) in *Handbook of Value: Perspectives from Economics, Neuroscience, Philosophy, Psychology and Sociology*, Tobias Brosch and David Sander (eds.), Oxford University Press.
- Solnit, Rebecca. The most radical thing you can do. *Orion Magazine*.
<https://orionmagazine.org/article/the-most-radical-thing-you-can-do/>

Week 10: Nov 22, Speaker Ryan Janzen, Co-Founder and CTO, TransPod Inc.

Readings: tbd (linked with guest speaker)

Week 11: Nov 29, uncertainty and adaptation

Recognizing the conditions of uncertainty under which much decision-making takes place, we look this week at decision-making strategies in cases of uncertainty, the need for adaptive approaches, and the challenges of communicating uncertainty to public audiences.

- Regan, Helen M., Yakov Ben-Haim, Bill Langford, William G. Wilson, Per Lundberg, Sandy J. Andelman, and Mark A. Burgman. (2005). Robust decision-making under severe uncertainty for conservation management. *Ecological Applications*, 15(4): 1471-1477.
- Jasanoff, Sheila. (2010). Policy forum: Testing time for climate science. *Science*, 328(5979): 695-696.

Week 12: Dec 6, Speaker Frank Ackerman, PhD, Principal Economist, Synapse Energy Economics, Cambridge MA (USA); research fellow at Global Economic Governance Institute, Boston University, and at Global Development and Environment Institute, Tufts University, “Worst-Case Economics: Extreme Events in Climate and Finance.”

Readings: tbd (linked with guest speaker)